

CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. A self-tapping implant for use in a bone, preferably a jawbone, the implant comprising:
a body with plural independent thread spirals arranged thereon;
a conically tapering portion arranged at a front end of the body and having one or more bone-chip recesses therein which accommodate bone material cut off during a tapping operation,
said one or more bone-chip recesses being formed by removal of material from the plural thread spirals and body, wherein, at least in the conically tapering portion, the plural thread spirals are materially reduced, each of the materially reduced threads having a cutting edge which extends inward from an outer edge of a respective remaining thread part,
said respective remaining thread part cooperatively

engaging with the bone during the tapping operation, wherein each cutting edge of a number of associated cutting edges of the materially reduced threads have a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a point of the pointed shape of the respective remaining thread part,

wherein a cutting edge on a first remaining thread part merges via a second radius into a rear edge on a second remaining thread part arranged before the first thread part in an implant screwing direction,

said cutting edge on the first remaining part being selected to provide an effective threading characteristic with respect to a desired strength of the implant,

wherein a cutting angle formed by the pointed shape is selected to be within a range of between 15–40°,

wherein each of plural thread relief edges effected by a respective one of the materially reduced thread parts is arranged essentially in the conically tapering portion and behind, as viewed in the implant screwing direction,

wherein full radius portions of the plural thread spirals within the conically tapering portion are engaged with the bone to provide a threading relief function during the tapping operation,
wherein the self-tapping implant comprises multiple thread spirals along at least a portion of a length thereof.

2. The self-tapping implant of claim 1, wherein the cutting angle is about 20°.
3. The self-tapping implant of claim 1, wherein the conically tapering portion is arranged with materially reduced thread parts with full radius and which are at least two in number.
4. The self-tapping implant of claim 1, wherein the cutting angle is less than 20°.
5. The self-tapping implant of claim 1, wherein each relief edge comprises two essentially plane relief surfaces which form an obtuse angle with respect to each other.
6. A self-tapping implant for a bone, preferably a jawbone, the implant comprising:

a body with plural thread spirals arranged thereon;
a conically tapering portion arranged at a front end of the body, and having one or more bone-chip recesses which accommodate bone material cut off during a tapping operation and which are formed by removal of material from the threads and body,
wherein, at least in the conically tapering portion, the plural thread spirals are materially reduced, each materially reduced thread having a cutting edge which extends inwards from an outer edge of a respective remaining thread part and which cooperatively engages with the bone during the tapping operation,
wherein each cutting edge of a number of the materially reduced threads has a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a remaining thread part front portion,
wherein cutting edges of the plural thread spirals comprise a straight part extending from the pointed shape of the cutting edge,

wherein a straight part on a first remaining thread part merges via a second radius into a straight rear edge on a second remaining thread part, arranged before the first thread part in a direction of screwing of the implant, wherein the second radius is arranged to optimize a remaining material in the body and remaining thread parts and, consequently, a holding strength of the self-tapping implant.

7. The self-tapping implant of claim 2, wherein the conically tapering portion is arranged with materially reduced thread parts having full radius and which are at least two in number.
8. The self-tapping implant of claim 2, wherein the cutting angle is less than 20° .
9. The self-tapping implant of claim 3, wherein the cutting angle is less than 20° .

10. The self-tapping implant of claim 2, wherein each relief edge comprises two essentially plane relief surfaces which form an obtuse angle with respect to each other.
11. The self-tapping implant of claim 3, wherein each relief edge comprises two essentially plane relief surfaces which form an obtuse angle with respect to each other.
12. The self-tapping implant of claim 4, wherein each relief edge comprises two essentially plane relief surfaces which form an obtuse angle with respect to each other.